Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

open look much like a small phlox, to which the plant is nearly allied. There are five stamens alternating with the lobes of the corolla, to which they are attached. The anthers are about as high as the stigma, towards which each one projects two short beaks. On pressing these beaks down with a pin, a mass of pollen oozes out of each transverse slit of the anther. After removing the pin, the beaks will again and again resume their places and the opening will close. After they were well open, I marked several fresh flowers and watched them two or three times a day for four or five days. In no case did any pollen escape from the anthers. These finally withered and shrunk up considerably, and the whole corolla, stamens and all, seemed to be lifted above the rest of the flower by the elongation of the calyx or some other cause.

This case seems to be dependent on insects for aid in fertilization. It is possible that fresh plants in their native place would not behave as did these sent by mail, but I think they would. If so, this queer plant is another of the hosts of plants which have a special contrivance by which insects are needed to aid in transferring pollen.—*Prof. W. J. Beal.*

WOLF AND HALL'S LIST OF THE MOSSES, LIVERWORTS AND LICHENS OF ILLINOIS.—This list appears in Bulletin, No. 2, of the Illinois State Laboratory of Natural History. It is simply a dry list, without any remarks such as would seem to be in place regarding variation, &c.; but will prove undoubtedly of use to local botanists.

ZOÖLOGY.[1]

INTELLIGENCE IN CHIMPANZEES.—Some observations recently made on the mental faculties of the pair of young chimpanzees (*Troglodytes niger*) in the Zoölogical Garden, indicate the possession by those animals of the power of ratiocination to a very considerable degree.

A looking-glass having been placed in the cage they proceeded to investigate the novel phenomenon presented to them, but without much success until one of them, being engaged at the moment in munching a crust of bread, appeared to be struck by a similarity in the occupation of himself and of the figure before him. Withdrawing the bread from his mouth, he looked first at it and then at its reflected image, and then proceeded to place it in various positions, watching carefully the figure in the mirror, until he seemingly became satisfied that what he saw was, in some manner to him incomprehensible, himself, after which he passed some time sitting in front of the glass watching his own motions with much satisfaction.

A snake being placed in the room the animals manifested great terror, climbing at once to the top of the cage and uttering incessantly their peculiar cry of alarm. So great an impression was made on them that after the snake was taken away they remained aloft for fully two hours, and not even the sight of the dish and spoon with which they were familiar was enough to bring them down, although they gave evidence by their outstretched hands and their expressive faces that it would afford them great pleasure to have it handed up to their place of refuge; still they would not come down, and did not until their regular attendant, to whom they are much attached, came on the scene, when they promptly descended and embraced him fondly. He was then directed to place them near the glass front of the cage, and the snake was shown to them from the outside, but that which was so frightful at a distance of ten feet in the same room, lost much of its terrors when only six inches away but on the other side of an inch of plate glass; they merely uttered their *hoo-hoo* of displeasure and pointed at it with the forefinger.

---

[1] The departments of Ornithology and Mammalogy are conducted by Dr. ELLIOTT COUES, U. S. A.

To make certain that they had not merely become accustomed to its presence, it was again thrown through the door, when the two animals, panic stricken as before, fled wildly up the ropes.

In this connection an interesting fact was observed. Mr. Wallace, in "The Malay Archipelago," describing the habits of the orang, in Borneo, says, that when disturbed by the presence of a strange object, as a man, both the male and female ascend the trees, but that it is the female only who sounds the note of alarm and casts down fruit and branches to the ground. This would appear to be likewise the case with the chimpanzee, for when frightened by the snake the male laid down on the cross-beam where they took refuge, and only turned himself over occasionally to fix an eye on the enemy and to utter his expressive *hoo-hoo*, while the female placed herself directly over the snake, repeating constantly an entirely different sound, something like *whey-whey*, in a high shrill key, meanwhile leaning down towards the snake and violently striking against the beam with the palm of her hand. These actions are undoubtedly a part of the maternal instinct called forth in all animals with whom the female is charged with the duty of taking care of the young and protecting them from dangerous intruders.

In contemplation of the mental processes performed by the chimpanzees in clearly discovering their own identity with the figure reflected by the mirror, and in relying on the protection afforded by the glass front of their cage against their dreaded enemy, it is hard to see on what but the flimsy basis supplied by prejudice, can be founded such statements as that, for instance, made by Mr. Mivart, to the effect that the difference between the minds of man and the higher apes, "is a difference of kind and not one of degree." (Man and Apes, p. 149.)

The writer, for one, fails to see wherein these processes differ, except somewhat in degree, from the lowest efforts of the brain of a savage; indeed it is doubtful if the undirected faculties, those given by nature alone, of a human child of the same age—about four years—would produce results of a much higher grade. When to these, however, is added, by the art of man, the faculty of language, the human infant develops with amazing rapidity into the man of intellect, leaving far behind its late rival which grows only into greater bulk and force of muscle, the growth of the individuals thus epitomizing into a few years the whole history of the vast progress and the brutish immobility of the two races which they represent.—*Arthur Erwin Brown, June* 20, 1878.

IS THE ROCKY MOUNTAIN SHEEP COVERED WITH WOOL?—Two questions are very frequently asked of western hunters: "Is the 'bighorn' covered with wool?" and "Do antelopes shed their horns?" If a vote were taken on these two subjects both questions would probably be answered in the negative.

During a number of years I have had occasion to travel over the low country of the West, as well as through some of its most elevated portions. Within the latter I have often met with the Rocky Mountain sheep, or bighorn (*Ovis montana*). As the high mountains where these beautiful animals usually occur are not accessible during the cold seasons of the year, I never saw the sheep otherwise than covered with hair, somewhat resembling that of the antelope. It is neither so fine nor so straight as that of the deer, but very nearly of the same color. In the summer of 1877 my work carried me to the Wind River mountains, Wyoming Territory. On July 17th I found myself quietly resting on a rock, amid large fields of snow, at an elevation of about 12,000 feet above sea level. While studying the surrounding scenery I was aroused by the sounds of rapidly approaching steps. Looking up I saw four mountain sheep running towards me. At first I scarcely recognized the species of the animals. They were of a totally different color from any I had seen before, and seemed to have a very rough skin. By the time I had completed my observations the sheep (female) had done likewise, and were moving off in an opposite direction with considerable speed. A shot sent after their retreating forms wounded one of them, but all escaped.

July 25th a party of four of us ascended a high peak near the southern termination of the range, in north latitude 42° 40′ (approximately). As we reached timber-line, about 11,200 feet above sea level, we saw a band of more than one hundred mountain sheep. Several were secured by the aid of our rifles. Upon dressing them we found that the "hair" was shorter than usual—about three-quarters of an inch in length. It was apparently growing rapidly, and was pushing before it a layer of very fine *wool*, about half an inch in thickness. In other words, the sheep were shedding their wool. This latter is exceedingly fine, and of a light gray color. Some portions of the body were already clear of it, but it still remained on the larger part thereof. This explained in a few moments the peculiar color and appearance of the sheep I had seen a week before. A fœtal animal belonging to this species, which I had occasion to examine in 1875, showed a similar character of its covering. The skin was no longer fresh when I obtained it, and the proof was not so positive as in this instance.

The second question is not so readily answered. During the summer of 1877 I saw several thousands of antelopes, and passed through regions over which they had roamed for years. There I found quite a number of hollow antelope horns, lying on the ground. Each time I made careful search, in order to discover other bones of the animal, but in eight instances could discover none. It may be that coyotes dragged the horns to the places where they were found, but in this case other portions, either of skin or skeleton, would probably have occurred near the spot. A young male antelope fell a victim to one of my bullets, and upon examination I found that one of his horns had been injured. A slight exertion, only, sufficed to remove the horn from its "core." If antelope do shed their horns, a supposition to which I incline, they probably do it at irregular intervals, and perhaps only as the result of disease or injury. Not being a professional zoölogist, I am unable to point out the affinities of these animals, which would render the shedding of horns either more probable or less, in accordance with their present taxonomic position.—*F. M. Endlich.*

(*Note by the Editor*). After several years familiarity with the prong-horned antelope in a wild state, I may say that I have never met with an undoubted case of shedding of the horn sheath. Shed horn-sheaths are not common where these animals abound, as they should be, were the phenomenon usual. Their appearance on the animal at times indicates that they may be shed, and I suppose that the evidence is sufficient that the shedding occurs. But it is not periodical nor even frequent.—*E. D. Cope.*

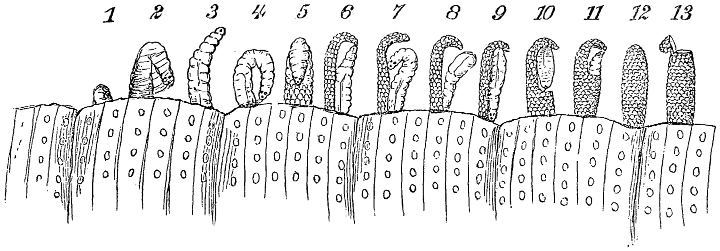
DISCOVERY OF TWO REMARKABLE GENERA OF MINUTE MYRIAPODS IN FAIRMOUNT PARK, PHILADELPHIA.—It has been my good fortune to detect *Polyxenes* and *Pauropus* in our splendid Park, thus adding two hitherto unnoticed articulates to the fauna of Pennsylvania. The former I regard as the *P. fasciculatus* of Say, and is about one-tenth of an inch long. Its detailed history is reserved for a future article. The *Pauropus* appears to be identical with *P. huxleyi* of Lubbock, at least after a most careful microscopical scrutiny of a number of specimens, I could find no character that would warrant specific distinction; the pyriform body between the two styles which surmounts the shorter of the two last segments of the antennæ being sessile as in the aforementioned species. The habitat was in the decayed roots of an old oak in the passage ways and galleries of a nest of *Termites* or white ants, and I think it likely that this and similar situations will turn out to be their favorite haunts. The singular activity of the little creature as compared with that of the small *Collembola* and crustaceans which were its companions was very striking and rendered it very evident that we had encountered an organism which until then had escaped our observation. The little fellows when roughly handled rolled themselves up and "played possum," as do some Diplopods. They also seemed to be very sensitive to contact with a pointed style with which I frequently touched them, and which I think they perceived by means of the long lateral bristles of which there are four on each side as well as by means of the antennæ. Much more active and quick in movement than *Polyxenes*, resembling in this respect the Chilopods, I am inclined to think that they are undoubtedly *Myriapoda*. Also the fact that I found many specimens with but three and four leg bearing segments is also evidence that they moult several times, as do their immediate allies, in passing from the immature to the adult state. As Lubbock has found the spermatozoa, and also noticed most of the other facts here mentioned, I would merely state that I have been so explicit only because desirous of confirming what seems to me to be that naturalist's just conclusions in regard to its myriapodal affinity. The species which I have found is white and is about 1-25th of an inch in length, which renders it a good subject to try the eyesight of a collector. With a magnifying power of a thousand diameters the styles or bristles which terminate the antennæ are seen to be made up of a great number of superposed disks or rings, and I have been unable to decide whether they are mere annular processes encircling the central axis of the style, or whether they are separate segments, though the flexibility of the styles would indicate that they were segmented. The clavate hairs are in like manner annulated.—*Jno. A. Ryder.*

[The discovery of Pauropus (*P. Lubbockii* Packard) at Salem, Mass., was announced in the NATURALIST in 1870 (vol. iv, p. 621). *Polyxenus fasciculatus* Say is not uncommon about Salem, Mass., under the bark of trees.—*Eds.*]

MODE OF CONSTRUCTION OF THE COCOONS OF MICROGASTER.—The construction of the cocoon of Microgaster, one of the Chalcidians, may be best observed under a moderate magnifying power.

The caterpillars most likely to be infested with these parasites are the large green and reddish ones of *Philampelus*, found on the grapevine and *Ampelopsis quinquefolia*. If half a dozen of these larvæ, when nearly full grown, are placed under a bell glass and fed every morning with fresh leaves of the vine from which they were taken, one or more will most likely be found to be infested with the larvæ of Chalcidians.

The first appearance of the parasite is represented in Fig. 1. A warty excrescence appears on the back of the caterpillar, which slowly emerges until it is seen to be a larva enclosed in a delicate transparent membrane, as represented in Fig. 2. This it soon succeeds in bursting, and rising to its full length, balances itself a moment as in Fig. 3, then bending double it ejects from its mouth a glairy liquid, which instantly changes to silk and fastens the posterior end to the skin of the caterpillar, as shown in Fig. 4, side view. It now begins to spin its cocoon by attaching a silken thread to the silky mass by which it had previously fastened itself to the caterpillar, and forming a series of loops of uniform size, first from right to left and then back again from left to right, as represented in the front view, Fig. 5, and better in the enlarged view Fig. 5 *a*, the arrow-heads showing the direction in which the head of the larva moved while forming the loops. The ends of the series, numbered 1, 2, 3, 4, are fastened to the edges of the ventral side of the body, which thus serves as a measure of the width of the cocoon and also acts as a support for the frail fabric in the first stages of spinning. After the larva has fastened the fabric as far up on its ventral surface as it can, conveniently, it then begins to spin free, as shown in the side view, Fig. 6, where it is represented as just completing the first half of its cocoon which resembles in form a slipper. This accomplished, the larva ceases to spin for the time being, bends its head, as in Fig. 7, towards its ventral surface and pushes the half cocoon free from its body. The form of the silken fabric enables it to stand unsupported, while the larva, sliding its head down to the base, holds on firmly until it swings it posterior end into the toe of the slipper.



FIGS. 1–13.—Ichneumon (*Microgaster*) spinning its Cocoon.

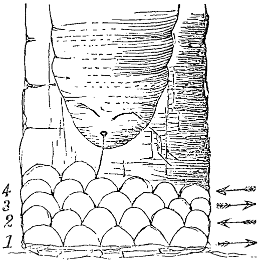


FIG. 5 *a*.

Fig. 8 shows it in the act of changing end for end, and in Fig. 9the larva is seen erect, beginning at the base to complete the other half of its cocoon. Fig. 10 shows the larva contracting its body as it spins upward for about half the length of the cocoon, when it again changes end for end, as shown in Fig. 11, where it is beginning at the upper part to unite the two sides, finally enclosing itself as represented in Fig. 12.

It may now be seen, under the microscope, through the meshes of its cocoon actively engaged in lining the interior with layers of very fine silk ejected from its mouth in great abundance. One half of the cocoon is first lined by a forward and back movement of its head, and then reversing its position it lines the other half in a similar manner.

In one case the larva was disengaged from the skin of the caterpillar, after beginning its cocoon. It, however, began again, and spun a portion while lying on the table. This was removed, when it began a third time and completed its cocoon.

In about ten days the insect made its appearance through a hole in the upper end, as represented in Fig. 13. The top was eaten off in a perfect circle and hung by a few threads, so as to resemble a lid as it was thrown back.

One caterpillar observed had between three and four hundred cocoons on its back and sides, and another was dissected after more than thirty larvæ had escaped, and a hundred and thirty were discovered in the soft integuments of the back.

The figures from 1 to 13 are magnified five diameters, but in order to observe the spinning of the cocoon a power of fifty is required.—*John P Marshall.*

ARGONAUTA TUBERCULOSA.—It should have been reported long ago that I had discovered a very fine and perfect shell of medium size, of the above, which was picked up August, 1876, from the surf washing at Point Comfort, New Jersey. This, in addition to the one obtained alive at Long Branch the same month and year, which I described in the AMERICAN NATURALIST for April, 1877, p. 243, increases the probability that the geographical range of the species is enlarging. I am satisfied now that both are the same species. Considering the frailty of the shell, and its exquisite perfection, no doubt can be held that its tenant was alive not many hours before the finding. The sheet containing drawing and measurements is mislaid, and the vain hope to find it has caused the delay in this communication.—*S. Lockwood.*

ANTHROPOLOGY.[1]

ON THE PUNISHMENT OF PROSTITUTION AMONG THE ABORIGINES.—During the time of my trip through Arizona several years since, as a member of the U. S. Topographical Expedition for the Exploration of that region, I had an opportunity of seeing several

---

[1] Edited by Prof. OTIS T. MASON, Columbian College, Washington, D. C.